

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0105732

Owner: Noranda Aluminum, Inc.  
Address: PO Box 70, St. Jude Industrial Park, New Madrid, MO 63869

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Noranda Aluminum, Inc.  
Address: PO Box 70, St. Jude Industrial Park, New Madrid, MO 63869

Legal Description: See page 2

Receiving Stream: Mississippi River (P)  
First Classified Stream and ID: Mississippi River (P) (03152)  
USGS Basin & Sub-watershed No.: (08020204-020007)

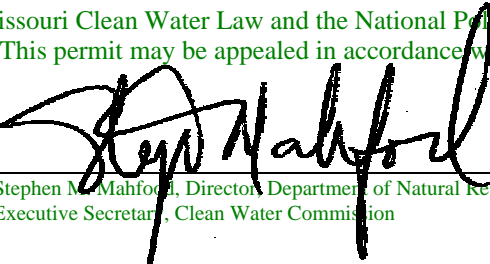
is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

**FACILITY DESCRIPTION**

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

January 9, 2004  
Effective Date

  
Stephen M. Mahford, Director, Department of Natural Resources  
Executive Secretary, Clean Water Commission

January 8, 2009  
Expiration Date  
MO 780-0041 (10-93)

Jim Hull, Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall #001 - Industry/direct chill casting contact - SIC #3334

Flocculation/floatation/sludge disposal is by contract hauler.

Design flow (from 1992 permit) is 110,000 gallons per day.

Actual flow (average daily discharge based on actual flows from 1997 to 2001) is 62,000 gallons per day.

Actual sludge production is 20 tons/year.

Legal Description: S  $\frac{1}{2}$ , Sec. 29, T22N R14E, New Madrid County

Outfall #002 - Industry/anode contact cooling - SIC #3334

No treatment/sludge to landfill.

Actual flow is one batch discharge (approximately 12,000 gallons) per year intermittent.

Actual sludge production is 2 tons/year.

Legal Description: N  $\frac{1}{2}$  Sec. 32, T22N R14E, New Madrid County

Outfall #003 - Industry/continuous rod casting (Rod Mill #1) - SIC #3334

No treatment/sludge disposal is by contract hauler/sludge to landfill.

Design flow is 43,000 gallons per day.

Actual flow is 10,000 gallons per day.

Negligible amounts of sludge will be produced by this cooling process.

Legal Description: N  $\frac{1}{2}$  Sec. 32, T22N R14E, New Madrid County

Outfall #004 - Industry/non-contact cooling water/storm water/outfalls #001, #002, #003, & #006 (collect in this basin) - SIC 3334

Collection basin/settling basin/no treatment/no sludge.

Actual flow is 816,000 gallons per day.

Actual flow includes an estimated 670,000 gallons per day of storm water.

Legal Description: S  $\frac{1}{2}$ , Sec. 29, T22N R14E, New Madrid County

Outfall #005 - Industry/non-contact cooling water/storm water/emergency basin overflow - outfalls #001, #002, #003, & #006 - SIC #3334.

Collection basin/settling basin/no treatment/no sludge.

Actual flow is 0 gallons per day.

Design flow is 816,000 gallons per day.

Legal Description: S  $\frac{1}{2}$ , Sec. 29, T22N R14E, New Madrid County

Outfall #006 - Industry/continuous rod casting (Rod Mill #2) - SIC #3334

No treatment/sludge disposal is by contract hauler/sludge to landfill.

Estimated flow is 1,500 gallons per day.

Negligible amounts of sludge will be produced by this cooling process.

Legal Description: N  $\frac{1}{2}$  Sec. 32, T22N R14E, New Madrid County

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 3 of 10	
					PERMIT NUMBER MO-0105732	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u> - Direct chill casting						
Flow	MGD	*		*	once/quarter	24 hr. total
Total Suspended Solids	lbs/day	2,576		1,288	once/quarter	grab
Benzo(a)pyrene	lbs/day	0		0	once/quarter	grab
Fluoride	lbs/day	67.91		30.13	once/quarter	grab
Antimony, Total Recoverable	lbs/day	2.203		0.982	once/quarter	grab
Nickel, Total Recoverable	lbs/day	0.628		0.422	once/quarter	grab
Aluminum, Total Recoverable	lbs/day	6.97		3.09	once/quarter	grab
pH - Units	SU	**		**	once/quarter	grab
<u>Outfall #002</u> - Anode contact cooling						
Flow	MGD	*		*	once/quarter	24 hr. total
Total Suspended Solids	lbs/day	4.740		3.792	once/quarter	grab
Oil and Grease	lbs/day	3.160		3.160	once/quarter	grab
Benzo(a)pyrene	lbs/day	0.011		0.005	once/quarter	grab
Fluoride	lbs/day	18.809		8.343	once/quarter	grab
Antimony, Total Recoverable	lbs/day	0.609		0.272	once/quarter	grab
Nickel, Total Recoverable	lbs/day	0.174		0.116	once/quarter	grab
Aluminum, Total Recoverable	lbs/day	1.931		0.856	once/quarter	grab
pH - Units	SU	***		***	once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>April 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 4 of 10	
					PERMIT NUMBER MO-0105732	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003</u> - Continuous rod casting						
Flow	MGD	*		*	once/quarter	24 hr. total
Total Suspended Solids	lbs/day	850		425	once/quarter	grab
Benzo(a)pyrene	lbs/day	0		0	once/quarter	grab
Fluoride	lbs/day	1.752		0.778	once/quarter	grab
Antimony, Total Recoverable	lbs/day	0.057		0.025	once/quarter	grab
Nickel, Total Recoverable	lbs/day	0.016		0.011	once/quarter	grab
Aluminum, Total Recoverable	lbs/day	0.180		0.080	once/quarter	grab
pH - Units	SU	**		**	once/quarter	grab
<u>Outfall #004</u> - Main discharge point						
Flow	MGD	*		*	twice/month	24 hr. total
Total Suspended Solids	mg/L	120		80	twice/month	grab
Oil and Grease	mg/L	15		10	twice/month	grab
Benzo(a)pyrene	mg/L	0.0005		0.0003	twice/month	grab
Fluoride	mg/L	40.0		27	twice/month	grab
Antimony, Total Recoverable	mg/L	0.060		0.040	twice/month	grab
Nickel, Total Recoverable	mg/L	1.0		0.67	twice/month	grab
Aluminum, Total Recoverable	mg/L	7.5		5.0	twice/month	grab
Cyanide, Amenable to Chlorination	mg/L	0.220		0.147	twice/month	grab
pH - Units	SU	**		**	twice/month	grab
Temperature (Note 1)	°F	90			twice/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>April 28, 2004</u> .						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions			once/year in March	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

					PAGE NUMBER 5 of 10	
<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PERMIT NUMBER MO-0105732	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #005</u> - Emergency basin overflow						
Rainfall	inches/day	*		*	Daily (Note 2)	gauge
Flow	MGD	*		*	****	24 hr. total
Total Suspended Solids	mg/L	120		80	****	grab
Oil and Grease	mg/L	20		15	****	grab
pH - Units	SU	**		**	****	grab
Benzo(a)pyrene	mg/L	*		*	****	grab
Antimony	mg/L	*		*	****	grab
Nickel	mg/L	*		*	****	grab
Aluminum	mg/L	*		*	****	grab
Fluoride	mg/L	*		*	****	grab
Cyanide, Total	mg/L	*		*	****	grab
Temperature (Note 1)	°F	*		*	****	grab
<u>Outfall #006</u> - Continuous Rod Casting						
Flow	MGD	*		*	once/quarter	24 hr. total
Oil & Grease	lbs/day	0.17		0.17	once/quarter	grab
Total Suspended Solids	lbs/day	0.251		0.201	once/quarter	grab
Fluoride	lbs/day	0.997		0.442	once/quarter	grab
Antimony, Total Recoverable	lbs/day	0.032		0.014	once/quarter	grab
Nickel, Total Recoverable	lbs/day	0.009		0.006	once/quarter	grab
Aluminum, Total Recoverable	lbs/day	0.102		0.045	once/quarter	grab
pH - Units	SU	***		***	once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>April 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- \* Monitoring requirement only.
- \*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
- \*\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 7.0-10.0 pH units.
- \*\*\*\* Reporting shall be once per quarter. If no discharge occurs during the month, the report shall state no discharge. Sampling shall be required once per day per discharge event. Discharge from Outfall #005 is allowed only during a storm event exceeding the 25-year, 24-hour storm (which is 5.9 inches of rainfall) or ten-year, ten-day storm.

Note 1 - In addition to the effluent limitations listed above, the temperature limitations and other requirements related to recovering streams listed in 10 CSR 20-7.031(4)(D) shall be met at all times.

Note 2 - To be reported with DMR only if discharge from Outfall #005 occurs.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.
4. Report as no-discharge when a discharge does not occur during the report period.
5. Sales Tax exemption shall not be granted for the construction of cooling towers as the company has stated they are not used for wastewater treatment.

C. SPECIAL CONDITIONS (continued)

6. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
  - (1) One hundred micrograms per liter (100 ug/L);
  - (2) Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
  - (4) The level established in Part A of the permit by the Director.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

7. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

- (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
- (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
- (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
- (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
- (e) There shall be no significant human health hazard from incidental contact with the water;
- (f) There shall be no acute toxicity to livestock or wildlife watering;
- (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
- (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

8. Industrial Sludge Disposal

- (a) Disposal of industrial sludge is not authorized by this permit. Industrial sludge shall be disposed at a permitted solid waste disposal facility in accordance with 10 CSR 80; or if the sludge is determined to be hazardous waste, shall be disposed at a permitted hazardous waste disposal facility pursuant to 10 CSR 25.
- (b) Non-hazardous sludge that is disposed on site or that is exempted under 10 CSR 80 must obtain applicable permits under 10 CSR 20-6.015 and 10 CSR 20-6.200.
- (c) Each effluent monitoring report shall also specify the date any sludge is removed from the facility, who removed the sludge and the number of gallons or quantity of sludge removed. The final disposal location shall be reported, including the name of the disposal facility, the solid waste or hazardous waste disposal permit number, and date of permit issuance.
- (d) This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#004	10%	Annually	24 hr. composite	March

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a single-dilution test in the months and at the frequency specified above. If the effluent passes the test, do not repeat the test until the next test period.  
Submit test results along with complete copies of the test reports as received from the laboratory within 30 calendar days of availability to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102.
- (2) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days , and biweekly thereafter, until one of the following conditions are met:
  - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
  - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (3) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (4) Additionally, the following shall apply upon failure of the third test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact WPCP, Planning Section to ascertain as to whether a TIE or TRE is appropriate . The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (5) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (6) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (7) All failing test results shall be reported to WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
- (8) When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.
- (9) Submit a concise summary of all test results with the annual report.



C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET)(continued)

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
- (2) To pass a multiple-dilution test:
  - (a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the  $LC_{50}$  concentration for the most sensitive of the test organisms; or,
  - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (5) Single-dilution tests will be run with:
  - (a) Effluent at the AEC concentration;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) reconstituted water.
- (6) Multiple-dilution tests will be run with:
  - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

#### SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

##### Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$ )
Test acceptability criterion:	90% or greater survival in controls

##### Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$ )
Test Acceptability criterion:	90% or greater survival in controls

Date of Fact Sheet: September 8, 2003

Date of Public Notice: September 26, 2003

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT  
FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development and modification of this permit, and the public participation process. It was drafted in March 1997 and updated in August 2000 to reflect proposed permit modifications.

NPDES PERMIT NUMBER: MO-0105732

FACILITY NAME: Noranda Aluminum, Inc.

OWNER NAME: Noranda Aluminum, Inc.

LOCATION: Sec. 29 & 32, T22N, R14E, New Madrid County

RECEIVING STREAM: Mississippi River

FACILITY CONTACT PERSON: Don Backfisch                      TELEPHONE: (573) 643-2361

FACILITY DESCRIPTION AND RATIONALE

The Federal Water Pollution Control Act (Section 402 of Public Law 92-500, as amended, commonly known as the "Clean Water Act") established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. NPDES permits in Missouri are issued by the Director to the Department of Natural Resources under an approved NPDES program, operated in accordance with federal and state laws (Federal "Clean Water Act" as previously cited and Missouri "Clean Water Law," Chapter 644 RSMo, as amended).

Noranda Aluminum, Inc., PO Box 70, New Madrid, MO 63869, has applied for a modification of NPDES permit MO-0105732, issued to its primary aluminum smelter in the St. Jude Industrial Park, located in the S ½, Sec. 29 & N ½, Sec. 32, T22N, R14E, of New Madrid County, Missouri. The current permit expired June 25, 2002. The Standard Industrial Classification (SIC) Code that applies to this smelter is 3334, Primary Production of Aluminum. The company proposes to replace their existing Anode Contact Cooling and Briquette Quenching Process and the associated cooling tower (Outfall #002) with a new units. They have also applied for a permit modifications necessary because of an additional continuous rod casting line in the existing Rod Mill Building and the associated cooling process, proposed Outfall #006.

The permit application identifies the six existing outfalls (discharge points). Outfall #001 contains the discharge of water from the direct chill casting contact cooling process. Outfall #002 will contain the discharge of water from an upgraded (new) anode contact cooling process. Outfall #003 contains the discharge of water from the existing continuous rod casting contact cooling process. Outfall #006 will contain the discharge of water from the continuous rod casting contact cooling process. The combined flows from outfalls #001, #002, #003 & #006 plus non-contact cooling water and stormwater, flow through on-site drainage ditches into a large collection basin. From there, an average of 816,000 gpd is pumped to the Mississippi River through outfall #004. Outfall #004 is the main discharge point of wastewater from the Noranda facility. Outfall 005 is an emergency spillway from the collection basin that is allowed by permit to discharge only during a storm event exceeding the 25 year, 24 hour storm or a 10 year, 10 day storm. This emergency overflow structure is required to prevent a catastrophic failure of the stormwater collection basin. If a discharge were to occur it would be to an unclassified stream in the Little River Ditches Drainage Basin.

FACILITY DESCRIPTION AND RATIONALE (continued)

TECHNOLOGY BASED EFFLUENT LIMITATIONS

Regulations promulgated at 40 CFR §122.44(a) require technology based effluent limitations to be placed in NPDES permits based on National effluent limitations guidelines and standards, best professional judgement (BPJ), or a combination of the two. Discharges from outfalls 001, 002, 003, and 006 are subject to effluent limitations given in 40 CFR Part 421.20 nonferrous metals guidelines. Outfalls 001, 002, 003, and 006 are internal monitoring points since they discharge into Noranda's storm water basin and then to the Mississippi River through outfall 004. The permit writer decided to continue using the established internal monitoring points for the determination of compliance with the federal regulations. This was done for simplicity sake, since Noranda's basin and outfall 004 also handles the storm water and non-contact flows from the property. To transfer the mass limitations to outfall 004 would have required extensive studies to determine an appropriate mass allocation for each of the pollutants for both the storm water and non-contact wastewater to add to the amount allocated to the regulated process flows.

BUILDING BLOCK METHOD OF ESTABLISHING LIMITS

Using this method, a facility receives a discharge allowance for each individual process only if it actually has the capability of operating that process. However, the facility does not have to be discharging wastewater from the process to receive the allowance. The building blocks can include allowances for contaminants from both categorically regulated processes (scope flows) and non-regulated processes (non-scope flows), for facilities which have combined waste streams. Noranda has no combined waste streams tributary to outfalls 001, 002, 003, or 006.

BASIS OF CATEGORICAL MASS LIMITS

Effluent mass limits for fluoride, total suspended solids (TSS), and pH based on the best practicable currently available (BPT) technology are specified in the Primary Aluminum Smelting Subcategory in 40 CFR ' 421.22. Effluent mass limits for benzo(a)pyrene, , nickel, aluminum, antimony, and fluoride based on the best available technology (BAT) are specified in the Primary Aluminum Smelting Subcategory in 40 CFR ' 421.23 (b), (q), and (r. Parts (a), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o), ((p), and (s) of ' 421.23 are not applicable to Noranda since they do not perform the operations pertaining to these parts at this site. New Source Performance Standards (NSPS) limitations specified in the Primary Aluminum Smelting Subcategory in 40 CFR ' 421.24 (b) for benzo(a)pyrene, nickel, aluminum, antimony, fluoride, total suspended solids (TSS), oil and grease, and pH will be required for the new Anode Process Cooling Process, outfall 002. The proposed outfall 006 will be cooling water from a new Continuous Rod Casting Production line and will require effluent mass limits for benzo(a)pyrene, nickel, aluminum, antimony, fluoride, total suspended solids (TSS), oil and grease, and pH based on NSPS limitations specified in the Primary Aluminum Smelting Subcategory in 40 CFR ' 421.24 (1).

PRIMARY ALUMINUM SUBCATEGORY

Technology based permit limits for the pollutants contained in 40 CFR Part 421, Subpart B, § 421.22 best practicable technology currently available (BPT), '421.23 best available technology economically achievable (BAT), and 421.24 New Source Performance Standards (NSPS) were calculated on the basis of the production quantities reported by the company and the following the federal standards. The production values used were those presented in the 2001 renewal application.

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BPJ Standards

'421.22 (lbs. per thousand pounds of product (hot aluminum metal))

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Fluoride	2.0	1.0
Total Suspended Solids	3.0	1.5
pH - Units	within the range of 6.0 to 9.0 at all times	
Note - Fluoride allowance <u>for existing sources</u> is determined by '421.23 not by '421.22.		
Fluoride allowance and Total Suspended Solids allowance <u>for new sources</u> is determined by '421.24 not by '421.22.		

Summation of BAT Standards for each Outfall

'421.23 (q) Direct Chill Casting Contact Cooling (lbs. per million lbs. of aluminum product from direct chill casting). 858,715 lbs per day for Outfall #001

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	no allowance	no allowance
Antimony	2.565	1.143
Nickel	0.731	0.492
Aluminum	8.120	3.602
Fluoride	79.080	35.090

'421.23 (r) Continuous Rod Casting Contact Cooling (lbs. per million lbs. of aluminum product from rod casting). 283,200 lbs per day for Outfall #003

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	no allowance	no allowance
Antimony	0.201	0.089
Nickel	0.057	0.038
Aluminum	0.636	0.282
Fluoride	6.188	2.746

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NSPS Standards

'421.24 (b) Anode Contact Cooling and Briquette Quenching (lbs. per million lbs. of anodes cast) for new sources. 1,512,000 lbs per day for Outfall #002

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	0.007	0.003
Antimony	0.403	0.180
Nickel	0.115	0.077
Aluminum	1.277	0.566
Fluoride	12.440	5.518
Oil and Grease	2.090	2.090
Total Suspended Solids	3.135	2.508
pH - Units	7 - 10	7 - 10

'421.24 (1) Continuous Rod Casting Contact Cooling (lbs. per million lbs. of aluminum product from rod casting). Production is 161,065 lbs per day for Outfall #006

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	no allowance	no allowance
Antimony	0.201	0.089
Nickel	0.057	0.038
Aluminum	0.636	0.282
Fluoride	6.188	2.746
Oil and Grease	1.040	1.040
Total Suspended Solids	1.560	1.248
pH - Units	7 - 10	7 - 10

CATEGORICAL EFFLUENT LIMITATION CALCULATIONS

OUTFALL 001 handles all of the wastewater from the Direct Chill Casting Contact Cooling so all of the mass allowance given to the industry for the  $0.858716 \times 10^6$  lbs per day of aluminum product from direct chill casting process goes to this outfall. This was accomplished by multiplying the average daily production (from the maximum production month) by the allowances given in '421.23 (q) to obtain the daily maximum and monthly average mass limits.

**BAT**

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	no allowance	no allowance
Antimony	2.203 lbs	0.982 lbs
Nickel	0.628 lbs	0.422 lbs
Aluminum	6.97 lbs	3.09 lbs
Fluoride	67.91 lbs	30.13 lbs
pH (BPT)	6 - 9 standard units at all times	

The total mass allowance for Total Suspended Solids (TSS) is calculated by multiplying the daily amount of product (hot aluminum metal) in thousands of pounds by the allowances given in '421.22.

**BPT**

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
TSS	2,576 lbs	1,288 lbs

OUTFALL 002 will handle all of the wastewater from upgraded Anode Contact Cooling system so all of the pounds of allowance given to the industry for the  $1.512 \times 10^6$  lbs per day of anodes pressed goes to this outfall. This was accomplished by multiplying the average daily production (from the maximum production month) by the NSPS allowances given in '421.24 (b) to obtain the daily maximum and monthly average mass limits.

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	0.011	0.005
Antimony	0.609	0.272
Nickel	0.174	0.116
Aluminum	1.931	0.856
Fluoride	18.809	8.343
Oil and Grease	3.160	3.160
Total Suspended Solids	4.740	3.792
PH	7 to 10	7 to 10

Note: Continuous Rod Casting Contact Cooling Outfalls 003 and 006. Water from the existing Rod Mill (Rod Mill #1) flows through Outfall 003. Continuous Rod Casting Contact Cooling Water from the proposed mill (Rod Mill #2) will be discharge through Outfall 006. BAT and NSPS standards apply to 003 and 006 respectively.

OUTFALL 003 handles all of the wastewater from the existing Rod Mill #1 so a portion of the pounds of allowance given to the industry for the  $0.283200 \times 10^6$  lbs per day of aluminum rods produced in the existing mill goes to this outfall. The limits for Outfall 003 were computed by multiplying the average daily production (from the maximum production month) by the allowances given in '421.23 (r) to obtain the daily maximum and monthly average mass limits.

**BAT**

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	no allowance	no allowance
Antimony	0.057 lbs	0.025 lbs
Nickel	0.016 lbs	0.011 lbs
Aluminum	0.180 lbs	0.080 lbs
Fluoride	1.752 lbs	0.778 lbs
pH (BPT)	6 - 9 standard units at all times	

The total mass allowance for Total Suspended Solids (TSS) from Outfall #003 is calculated by multiplying the daily amount of product (hot aluminum metal) in thousands of pounds by the allowances given in '421.22.

**BPT**

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
TSS	850 lbs	425 lbs

OUTFALL 006 will handle all of the wastewater from the new Continuous Rod Casting Contact Cooling system (Rod Mill #2) so a portion of the pounds of allowance given to the industry for the  $0.161065 \times 10^6$  lbs per day of aluminum rods produced from the new mill goes to this outfall. The  $0.215500 \times 10^6$  pounds per day of aluminum rods is the design production of the proposed mill. Actual production will be somewhat less. The limits for Outfall 006 were computed by multiplying the daily production value by the allowances given in '421.24 (1) to obtain the daily maximum and monthly average mass limits.

**NSPS**

<u>Pollutant</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>
Benzo(a)pyrene	no allowance	no allowance
Antimony	0.032 lbs	0.014 lbs
Nickel	0.009 lbs	0.006 lbs
Aluminum	0.102 lbs	0.045 lbs
Fluoride	1.997 lbs	0.442 lbs
Oil and Grease	0.17 lbs	0.17 lbs
Total Suspended Solids	0.251 lbs	0.201 lbs
PH	7 - 10 standard units at all times	

NATIONAL POLICY OBJECTIVES

The Clean Water Act states that: "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addressing this, the EPA outlined the national policy objectives for development of post-BAT NPDES permit limitations (third round) in the March 9, 1984, Federal Register. This policy states that: "to control pollutants beyond Best Available Technology Economically Achievable (BAT), secondary treatment, and other Clean Water Technology-based requirements in order to meet state water quality standards, the EPA will use an integrated strategy consisting of both biological and chemical methods to address toxic and nonconventional pollutants from industrial and municipal sources. **Where State standards contain numerical criteria for toxic pollutants, NPDES permits will contain limits as necessary to assure compliance with these standards.** In addition to enforcing specific numerical criteria, **EPA and the States will use biological techniques and available data on chemical effects to assess toxicity impacts and human health hazards based on the general standard of 'no toxic materials in toxic amounts'.**"

Where violations of water quality standards are identified or projected, EPA and the States will develop water quality based effluent limits for inclusion in any issued permit. Where there is a significant likelihood of toxic effects to biota in the receiving stream, EPA and the States may impose permit limits on effluent toxicity and may require an NPDES permittee to conduct a toxicity reduction evaluation (TRE). Where toxic effects are present but there is a significant likelihood that compliance with technology based requirements will sufficiently mitigate the effects, EPA and the States may require chemical and toxicity testing after installation of treatment and may reopen the permit to incorporate additional limitations if needed to meet water quality standards.

#### NATIONAL REGULATIONS

Section 122.44(d)(1) of Title 40 of the Code of Federal Regulations requires EPA and the delegated states to evaluate each NPDES permit for the potential to exceed a state numerical or narrative water quality standards, including those for toxics, and to establish effluent limits for those facilities with the "reasonable potential" to exceed those standards. These regulations require chemical specific limits, based on state numerical water quality standards or other criteria developed by EPA, and whole effluent toxicity effluent limits.

#### ANTI-BACKSLIDING

40 CFR ' 122.44(1) Reissued permits. (1) Except as provided in paragraph (1)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under ' 122.62).

#### RATIONALE FOR WATER QUALITY EFFLUENT LIMITATIONS

Missouri's Water Quality Standards, 10 CSR 20-7.031, define the state's water quality objectives in terms of water uses to be maintained and criteria to protect those uses. The classified streams in the state are listed by name in the standards, and specific use designations are indicated. There are two receiving streams in this case. Outfall #004 discharges by pumping to the Mississippi River, which is classified for beneficial use as irrigation, livestock & wildlife watering, protection of warm water aquatic life & human health - fish consumption, boating, drinking water supply, and industrial. For each contaminant of concern, the most stringent value listed in Table A (Criteria for Designated Uses) was selected. A dilution factor of 10 was applied, since this outfall discharges to the Mississippi River and since the maximum allowed by {10 CSR 20-7.031(4)5.B.(III)(b)} is 10 times. Outfall #005 is to discharge only under extreme flooding conditions to an unclassified ditch in the Little River Ditches Drainage Basin. Only monitoring and reporting is being required for discharge events.

Water quality based limits are established in accordance with the state's Effluent Regulations, {10 CSR 20-7.015}. Subpart (2) applies to Outfall #004, and subpart (8) applies to Outfall #005.

Yearly whole effluent toxicity (WET) testing is called for in the permit to determine if the discharge is toxic. This bio-monitoring will be done using two species of aquatic organisms and 10% effluent from Outfalls #004, which contains all the process wastewater, cooling water, and stormwater from the site. If the biomonitoring indicates that the effluent is toxic, steps are called for to identify and eliminate the toxicity. No specific WET testing is specified for Outfall #005 since the water discharged from this outfall would exhibit the same characteristics as the water discharged through Outfall #004. Even the 10% dilution allowed for the Mississippi would be acceptable as applied to outfall 005, because during a catastrophic storm event (causing a discharge from Outfall #005) the receiving stream would be running at or beyond bank capacity. Additionally it would be expected that the pumping equipment for Outfall #004 would be running non-stop, so that the actual discharge from Outfall #005 would be minimal. Details of the WET test procedures are contained in the special conditions of the permit.



The monitoring requirements for the discharges were established in accordance with {10 CSR 20-7.015 (2)(D)}, which states "...at a minimum, one (1) wastewater sample per year for each fifty thousand (50,000) gallons per day (gpd) of effluent, or fraction thereof..." Since Outfalls #001, #002, #003 & #006 are internal monitoring points with average flows less 50,000 gpd and since the purpose of the monitoring at those locations is to determine compliance with the federal categorical limits, once per quarter monitoring is being required. Outfall #004 has an average flow of 750,000 gpd, which requires a minimum of 15 samples per year. Therefore, two (2) samples per month, for a total of 24 per year, are being established as the closest uniform sampling schedule available. Since extremely infrequent discharges from Outfall #005 are expected, monitoring is being required once per day during each discharge event with reporting monthly.

#### WATER QUALITY EFFLUENT LIMITATION CALCULATIONS

10 CSR 20-7.031, Table A, provided the following water quality limits for each of the contaminants of concern.

Benzo(a)pyrene	0.049 µg/l	(Human health protection - fish consumption)
Fluoride	4.0 mg/l	(Drinking water supply & livestock/wildlife watering)
Antimony	6.0 µg/l	(Drinking water supply)
Nickel	100.0 µg/l	(Drinking water supply)
Aluminum	750.0 µg/l	(Protection of aquatic life)
Cyanide	22.0 µg/l	(Protection of aquatic life)

After applying the allowance for dilution beyond the zone of initial dilution (10x), the maximum allowed by 10 CSR 20-7.021(A)5.B.(III)(b), the limits become:

Benzo(a)pyrene	0.49 µg/l	(Quantification limit = 5.0 µg/l)
Fluoride	40.0 mg/l	
Antimony	60.0 µg/l	
Nickel	1000.0 µg/l	= 1.0 mg/l
Aluminum	7500.0 µg/l	= 7.5 mg/l
Cyanide	220.0 µg/l	(Amenable to chlorination)

The water quality standards for metals contained in 10 CSR 20-7.031, Table A are expressed in terms of dissolved metals. 40 CFR '122.45(c) requires effluent to be measured in terms of total recoverable metals. A translator must be employed to convert from the dissolved metal standard into terms of total recoverable metal for the permit limits. EPA 823-B-96-007 (June 1996) document titled The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion can be used to provide a permit limit. Applying this translator cannot be accomplished until a site specific study is done on the receiving water. Since this study has not been presented with the permit application, it will be necessary to apply the more protective dissolved water quality numbers in terms of total recoverable. The permittee may conduct a study of the receiving water using the above referenced EPA guidance document, and provide this information to the Missouri Department of Natural Resources at a later date in support of a permit modification request to increase the total recoverable metals limits contained in this permit.

The limit for petroleum oil and grease in process wastewater and stormwater discharges is set by internal policy to a daily maximum of 15 mg/l and monthly average of 10 mg/l. 10 CSR 20-7.015(2) specifies the pH in range of 6.0 - 9.0. The TSS established in this permit is unchanged from the expiring permit. The Noranda basin is not a sewage lagoon, however it is a stormwater basin subject to organic loading from the droppings of wild fowl around the immense complex. The basin is just as apt to grow algae as a lagoon, therefore TSS daily maximum of 120 mg/l, and monthly average of 80 mg/l was established.

SPECIAL CONDITIONS

Special conditions are also attached to the draft permit to explain, in detail, the expectations placed upon the permittee for the operation, monitoring and reporting of the wastewater handling activities at this specific permitted facility.

STANDARD CONDITIONS

Standards conditions are attached to the draft permit are applied to all NPDES permittees. They reflect requirements of the federal (40 CFR Part 122) and state (10 CSR 20-Chapter 6) regulations with respect to permittee duties, responsibilities, and liabilities.

# WATER QUALITY REVIEW SHEET

Determination of Effluent Limits

## FACILITY INFORMATION

Facility Name: Noranda Aluminum NPDES #: MO-0105732

Facility Type/Description: Aluminum Smelting and Casting

8-Digit Huc: 8020204 - 020007 County: New Madrid

Legal Description: Secs. 29 and 32, T22N, R14E

## OUTFALL CHARACTERISTICS

Outfall	Design Flow (Cfs)	Treatment Type	Receiving Waterbody	Main Contaminant Of Concern
001	0.11 MGD	None	Mississippi River (P)	Flocculation, TSS, AL
002	0.001 MGD	None	Mississippi River (P)	Anode Cooling, AL, TSS
003	0.04 MGD	None	Mississippi River (P)	AL Casting, AL
004		Settling	Mississippi River (P)	Non-contact Cooling, TSS
005	0.816 MGD	Settling	Little River (C)	Emergency Overflow, TSS
006	0.001 MGD	None	Mississippi River (P)	Casting, Al, TSS

## RECEIVING WATERBODY INFORMATION

Waterbody	Class	7q10(Cfs)	*Designated Uses	Other Characteristics
Mississippi River	P	>100,000		
Little River	C	0		

\*Cool water fishery (clf), cold water fishery (cdf), irrigation (irr), industrial (ind), boating & canoeing (btg), drinking water supply (dws), whole body contact recreation (wbc), protection of warmwater aquatic life and human health (aql), livestock & wildlife watering (lww)

## PERMIT LIMITS AND INFORMATION

TMDL Watershed: Yes ☐ No ☒ Disinfection Waiver: Yes ☐ No ☐ NA ☒  
W.L.A. Study Conducted: Yes ☐ No ☒ 303d Waterbody: Yes ☒ No ☐ NA ☐  
Disinfection Required: Yes ☐ No ☒ Violations: Yes ☐ No ☒

## Outfall# 001

Wet Test: Yes ☐ No ☒ Frequency:                      A.E.C.            Limit:                     

PARAMETER	Daily Maximum	Weekly Average	Monthly Average
Flow	*		*
TSS	2576 lbs		1288 lbs
Benzo (a) Pyrene	0 lbs		0 lbs
Fluoride	67.91 lbs		30.13 lbs
Antimony, Total Recoverable	2.203 lbs		0.982 lbs
Nickel, Total Recoverable	0.628 lbs		0.422 lbs
Aluminum, Total Recoverable	6.97		3.09
pH	6 - 9 SU		6 - 9 SU

## Outfall# 002, Anode Contact Cooling, New Source

Wet Test: Yes ☐ No ☒ Frequency: \_\_\_\_\_ A.E.C. \_\_\_\_\_ Limit: \_\_\_\_\_

PARAMETER	Daily Maximum	Weekly Average	Monthly Average
Flow	*		*
TSS	4.740 lbs		3.792 lbs
Oil and Grease	3.160 lbs		3.160 lbs
Benzo (a) Pyrene	0.011 lbs		0.005 lbs
Fluoride	18.809 lbs		8.343 lbs
Antimony, Total Recoverable	0.609 lbs		0.272 lbs
Nickel, Total Recoverable	0.174 lbs		0.116 lbs
Aluminum, Total Recoverable	1.931 lbs		0.856 lbs
pH	7 - 10 SU		7 - 10 SU

## Outfall# 003

Wet Test: Yes ☐ No ☒ Frequency: \_\_\_\_\_ A.E.C. \_\_\_\_\_ Limit: \_\_\_\_\_

PARAMETER	Daily Maximum	Weekly Average	Monthly Average
Flow	*		*
TSS	850 lbs		425 lbs
Benzo (a) Pyrene	0 lbs		0 lbs
Fluoride	1.752 lbs		0.778 lbs
Antimony, Total Recoverable	0.057 lbs		0.025 lbs
Nickel, Total Recoverable	0.016 lbs		0.011 lbs
Aluminum, Total Recoverable	0.180 lbs		0.08 lbs
pH	6 - 9 SU		6 - 9 SU

## Outfall# 004, Main Outfall from Collection Basin

Wet Test: Yes ☒ No ☐ Frequency: Annually A.E.C. 10% Limit: No significant mortality

PARAMETER	Daily Maximum	Weekly Average	Monthly Average
Flow	*		*
TSS	120 mg/L		80 mg/L
Oil and Grease	15 mg/L		10 mg/L
Fluoride	40 mg/L		27 mg/L
Antimony, Total Recoverable	0.060 mg/L		0.04 mg/L
Nickel, Total Recoverable	1.0 mg/L		0.67 mg/L
Aluminum, Total Recoverable	7.5 mg/L		5.0 mg/L
Cyanide Amenable to CL	0.22 mg/L		0.147 mg/L
pH	6 - 9 SU		6 - 9 SU
Temperature	90° F		

## Outfall# 005, Emergency Release Only

Wet Test: Yes ☐ No ☒ Frequency: \_\_\_\_\_ A.E.C. \_\_\_\_\_ Limit: \_\_\_\_\_

PARAMETER	Daily Maximum	Weekly Average	Monthly Average
Rainfall	*		*
Flow	*		*
TSS	120 mg/L		80 mg/L
Oil and Grease	20 mg/L		15 mg/L
pH	6 - 9 SU		6 - 9 SU
Fluoride	*		*
Antimony, Total Recoverable	*		*
Nickel, Total Recoverable	*		*
Aluminum, Total Recoverable	*		*
Cyanide Amenable to CL	*		*
Temperature	*		*

## Outfall# 006, Rod Casting, New Source

Wet Test: Yes \_\_\_ No X Frequency:\_\_\_ A.E.C. \_\_\_ Limit: \_\_\_\_\_

PARAMETER	Daily Maximum	Weekly Average	Monthly Average
Flow	*		*
TSS	0.251 lbs		0.2 lbs
Benzo (a) Pyrene	0 lbs		0 lbs
Fluoride	0.997 lbs		0.442 lbs
Antimony, Total Recoverable	0.032 lbs		0.014 lbs
Nickel, Total Recoverable	0.009 lbs		0.006 lbs
Aluminum, Total Recoverable	0.102 lbs		0.045 lbs
pH	7 - 10 SU		7 - 10 SU
Oil and Grease	0.17		0.17

### Derivation and Discussion of Limits

Outfall 001 have been given categorical Best Available Technology limits found at 40 CFR 421.23 (Q). These are production based.

Outfall 002 has been given categorical new source limits found at 40 CFR 421.24 (b).

Outfall 003 has been given categorical Best Available Technology limits found at 40 CFR 421.23 (R) for all else.

Outfall 004 has been given limits based on ten times acute aquatic life or drinking water criteria concentrations as daily maximum, and 0/66 of that value as a monthly average for F, Sb, Ni, Al, and CN. The Benzo(a)Pyrene limit is the practical quantification limit. The Oil and Grease and Total Suspended Solids limits are standard technology based limits. Since this is the main outfall, WET testing is required.

Outfall 005 limits for Oil and Grease, pH, and Total Suspended Solids are standard technology based limits. All others are monitoring only since this is an emergency overflow type outfall.

Outfall 006 has been given categorical new source performance limits at 40 CFR 421.24 (L).

The assumption of 100% of discharged aluminum becoming available in the dissolved (toxic) form in-stream may be overly conservative. Data from a Mississippi River indicate that dissolved aluminum may comprise only a small percent of the total recoverable metal (~5%).

Values are occasionally higher than criterion of 750 µg/L, but the dissolved percent is always low.

To comply with standards, dissolved aluminum in excess of the acute criterion must not extend beyond the allowable zone of initial dilution. Sampling of the effluent and in-stream from 150' to 3 miles downstream of the outfall, within the effluent plume, would demonstrate any exceedances of the dissolved criterion and determine a site-specific ratio.

For Outfall 005, if Discharge Monitoring Reports (DMR) analyses exceed the following values, these values as effluent limits may be required:

F	4	ppm
Sb	0.014	ppm
Ni	5.4	ppm
Al	0.075	ppm
Benzo(a)pyrene	0.005	ppm

A "WET" test, with an acceptable effluent concentration of 10%, should be conducted annually on Outfall 004.

Reviewer: Tim Stallman

Date: 9/22/2003

Unit Chief: Richard J. Laux

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.